REMARKS

Claims 1, 3, 4, 6-8, 10-15, and 24 are currently pending and stand rejected. More particularly, claims 1, 3, 7, 8, 11, 15, and 24 are rejected as being as being unpatentable over Schwesig (USP 6,573,681) in view of of DeDecker et al. (USP 5,904,666). Claim 10 was rejected as being unpatentable over Schwesig and DeDecker et al. in view of Sato (USP 6,775,115). Claim 12 stands rejected as being unpatentable over Schwesig and DeDecker et al. in view of Wilson (USP 5,764,024).

Applicant appreciates the Examiner's consideration of the amendments and remarks presented in the paper filed July 12, 2007. Applicant further appreciates the Examiner's detailed response to the arguments presented in the July 12 paper regarding the patentability of the pending claims.

In the Response to Arguments section of the outstanding office action, the Examiner makes note the logic signals IL1 and IL2 "are given by system I1 and I2 respectively, not the logic circuit ST." OFFICE ACTION, September 25, 2007, p. 7. As set forth below, it is believed that the distinction is inconsequential, but nonetheless, it should be clarified that the logic circuit, designated ST, disclosed by Schwesig is part of system I1, as shown in FIG. 1 of the reference. System I1 and system I2 are each described as including "a microprocessor, a microcontroller, an appropriate application-specific integrated circuit ASIC or other control units known in the art." (3:60-63) Thus, one skilled in the art would consider systems I1 and I2 as being "logic circuits" or, minimally, including "logic circuits". Additionally, insofar as system I1 has the aforementioned ST logic circuit, system I1 necessarily constitutes a "logic circuit" notwithstanding the separate processing components referenced above.

As set forth in the recently published Examination Guidelines, 72 Fed. Reg. 57526 (2007), for an obviousness rejection, the Examiner must undertake a factual inquiry to determine the level of ordinary skill in the art at the time of the invention, and make findings of fact related to how a person of ordinary skill would have understood prior art teachings, or what a person of ordinary skill would have known or could have known at the time of the invention. That is, "factual findings made by Office personnel are the necessary underpinnings to establish obviousness." Id. In this case, the Examiner

has failed to provide a factual foundation for the knowledge of a person of ordinary skill in the art at the time of the invention. The Examiner's has merely speculated that one skilled in the art at the time the invention was made would have combined the teachings of Schwesig and DeDecker et al. More particularly, the Examiner has stated that "it would have been obvious to those skilled in the art at the time the invention was made to modify the safety circuit of Schwesig and provide the safety circuit electrically independent of the logic circuit as taught by DeDecker, to shutdown the motor in case of logic circuit malfunction, and thus to provide redundant protection to ensure power is removed from the motor." OFFICE ACTION, September 25, 2007, p. 3. The Examiner made the above conclusionary statement, but has not set forth any facts that support such a statement. In other words, the Examiner has not provided any facts, either in the references themselves or knowledge generally available in the art, that establishes that one skilled in the art, at the time the claimed invention was made, with full knowledge of the disclosures of Schwesig and DeDecker, would have appreciated the benefits of combining or modifying the respective disclosures and that such a combination or modification could have been, as set forth in the Examination Guidelines, made by:

> (A) Combining prior art elements according to known methods to yield predictable results;
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> (B) Simple substitution of one known element for another to obtain predictable results;
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> (C) Use of known technique to improve similar devices in the same way;
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> (D) Applying a known technique to a known device ready for improvement to yield predictable results;
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> (E) Choosing from a finite number of identified, predicable solutions, with a reasonable expectation of success;
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> (F) Known work in one field of endeavor that prompts variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art; and

> (G) Some teaching, suggestion, or motivation that would have led one of ordinary skill in the art to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

Insofar as the Examiner is relying upon the teaching-suggestion-motivation analysis to support a rejection of obviousness, it is well established that a prima facie case of obviousness cannot be established if the references themselves, or a general understanding of the art, do not provide a motivation or suggestion to arrive at the claimed invention. See MPEP §2143.01. The requisite motivation to combine cannot be established based on applicant's own disclosure. That is, while Applicant has recognized the benefits and advantages of providing an electrically isolated or independent safety relay, to meet the requirements for prima facie obviousness, the Examiner must show that the references themselves teach or suggest the motivation. In this regard, prima facie obviousness cannot be established by providing two references that each disclose separate elements of the claimed invention and suggesting that one skilled in the art would have combined the separate disclosures. The burden on the Examiner, and the reference is much more. The references must suggest the purported combination notwithstanding applicant's combination of those elements. To assume that one skilled in the art would have been so motivated upon review of applicant's disclosure would be impermissible hindsight and, it is has long been established that a prima facie case of obviousness cannot be sustained by such hindsight. Further, as explained in greater detail below, the references not only fail to suggest the combination of elements called for in the present claims, but, in fact, teach away from such a combination.

Regarding the subject matter of a safety relay being electrically isolated or independent of a low logic circuit, the Examiner has asserted that one skilled in the art would have found such subject matter obvious given the disclosures of Schwesig and DeDecker et al. Specifically, the Examiner has asserted that Schwesig discloses all of the structural limitations, but "is silent regarding the safety circuit being electrically independent of the logic circuit." OFFICE ACTION, p.7 As such, the Examiner has asserted that it would have been obvious to electrically isolate the safety relay or safety circuit from the logic circuit, e.g., microprocessor, because DeDecker teaches a safety

circuit electrically independent ... of a logic circuit. Notwithstanding the disclosure of DeDecker, Schwesig explicitly teaches away from such electrical isolation.

Schwesig discloses, as illustrated in FIG. 1, a drive control for a three-phase AC motor that "has two systems I1 and I2, via which the inverter W, and thus the three-phase AC motor M are operated." (3:58-60). In addition to driving the AC motor, the drive control also provides "safe stopping" by "turning off ... the inverter W operationally or in the event of a fault." (4:10-12). Schwesig teaches that this "safe stopping" is achieved "by interrupting the supply voltage SV1, derived from an external voltage SV, for the optocouplers OK1, OK3 and OK5 for the upper bridge arm of power transistors via a switch S1 (mechanical or else electronic in design) with the aid of the signal IL1 to the system I1..." (4:13-22). As noted above, system I1 includes the ST circuit (logic circuit) and, moreover, is also described as including a microprocessor or similar device, generally considered a logic circuit.

Whether signal IL1 is provided by the ST circuit or by the system I1, the signal is provided by a "logic circuit" to the electrical switch S1. To provide such a signal, the two components must be electrically connected to another. Thus, even assuming that DeDecker et al. teaches an electrically isolated safety circuit or relay, one skilled in the art, based on the disclosure of Schwesig itself, would not have been motivated to electrically isolate switch S1 from system I1. Doing so would contradict an express teaching of Schwesig – that the logic circuit ST or system I1 provide a command signal to the switch S1.

Moreover, one skilled in the art would recognize that incorporating the switch disclosed by DeDecker et al. into the circuit, which is microprocessor based, of Schwesig does not render the combined circuit more safe or reliable. A skilled artisan would appreciate that controlling the switch disclosed by DeDecker et al. with a microprocessor, as disclosed by Schwesig, does not alleviate the pitfalls of a microprocessor based approach. Specifically, a microprocessor may consist of millions of transistors whose operation is governed by software. Not only may the transistors mechanically fail, but the software is also prone to error, which may cause the microprocessor to fail to provide the appropriate switching signal when a fault condition is detected. As such, safety circuits that rely upon microprocessors are inherently less reliable. The present invention

overcomes this drawback by providing an electrically independent or isolated control of low power and is thus a non-obvious improvement over Schwesig when modified to incorporate the disclosure of DeDecker et al.

Therefore, based on the explicit teaching of the references, one skilled in the art would not have been motivated to combine the teachings of Schwesig and DeDecker et al. Accordingly, the Examiner has not established a prima facie case of obviousness. As such, Applicant requests withdrawal of the rejections and timely allowance of the application.

While Applicant believes the claims are in condition for allowance, Applicant would request that any paper sustaining the final rejection of the claims set forth why one skilled in the art would have been motivated to combine the disclosures of Schwesig and DeDecker et al. notwithstanding the express teachings of Schwesig. Applicant believes such explanation is necessary so that this issue is clarified for appeal.

Any questions regarding this matter can be directed to the undersigned.

Respectfully submitted,
DAVID G. FULLINGTON

By: _____
J. Mark Wilkinson
Reg. No. 48,865
Attorney for Applicant

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P.O. ADDRESS:
BOYLE FREDRICKSON, S.C.
840 N. Plankinton Ave.
Milwaukee, WI 53203
Telephone: (414) 225-9755
Facsimile: (414) 225-9753